



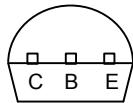
Micro Commercial Components
20736 Marilla Street Chatsworth
CA 91311
Phone: (818) 701-4933
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2N5401

Features

- Through Hole Package
- 150°C Junction Temperature

Pin Configuration
Bottom View



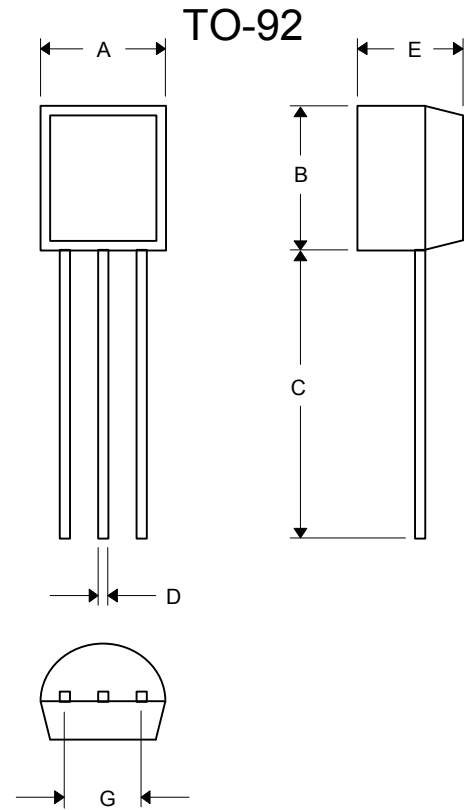
PNP Silicon
Amplifier Transistor
625mW

Mechanical Data

- Case: TO-92, Molded Plastic
- Marking: 2N5401

Maximum Ratings @ 25°C Unless Otherwise Specified

Charateristic	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	150	V
Collector-Base Voltage	V_{CBO}	160	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current(DC)	I_C	600	mA
Power Dissipation@ $T_A=25^{\circ}\text{C}$ Derate above 25°C	P_d	625 5.0	mW mW/°C
Power Dissipation@ $T_C=25^{\circ}\text{C}$ Derate above 25°C	P_d	1.5 12	W mW/°C
Maximum Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	200	°C/mW
Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	°C/mW
Operating & Storage Temperature	T_j, T_{STG}	-55~150	°C



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.175	.185	4.45	4.70	
B	.175	.185	4.46	4.70	
C	.500	---	12.7	---	
D	.016	.020	0.41	0.63	
E	.135	.145	3.43	3.68	
G	.095	.105	2.42	2.67	

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector–Emitter Breakdown Voltage ⁽¹⁾ ($I_C = 1.0\text{ mAdc}$, $I_E = 0$)	$V_{(BR)CEO}$	150	—	Vdc
Collector–Base Breakdown Voltage ($I_C = 100\text{ }\mu\text{Adc}$, $I_E = 0$)	$V_{(BR)CBO}$	160	—	Vdc
Emitter–Base Breakdown Voltage ($I_E = 10\text{ }\mu\text{Adc}$, $I_C = 0$)	$V_{(BR)EBO}$	5.0	—	Vdc
Collector Cutoff Current ($V_{CB} = 120\text{ Vdc}$, $I_E = 0$) ($V_{CB} = 120\text{ Vdc}$, $I_E = 0$, $T_A = 100^\circ\text{C}$)	I_{CBO}	— —	50 50	
Emitter Cutoff Current ($V_{EB} = 3.0\text{ Vdc}$, $I_C = 0$)	I_{EBO}	—	50	nAdc

ON CHARACTERISTICS⁽¹⁾

DC Current Gain ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$) ($I_C = 10\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$) ($I_C = 50\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$)	h_{FE}	50 60 50	— 240 —	—
Collector–Emitter Saturation Voltage ($I_C = 10\text{ mAdc}$, $I_B = 1.0\text{ mAdc}$) ($I_C = 50\text{ mAdc}$, $I_B = 5.0\text{ mAdc}$)	$V_{CE(sat)}$	— —	0.2 0.5	Vdc
Base–Emitter Saturation Voltage ($I_C = 10\text{ mAdc}$, $I_B = 1.0\text{ mAdc}$) ($I_C = 50\text{ mAdc}$, $I_B = 5.0\text{ mAdc}$)	$V_{BE(sat)}$	— —	1.0 1.0	Vdc

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product ($I_C = 10\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $f = 100\text{ MHz}$)	f_T	100	300	MHz
Output Capacitance ($V_{CB} = 10\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$)	C_{obo}	—	6.0	pF
Small–Signal Current Gain ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $f = 1.0\text{ kHz}$)	h_{fe}	40	200	—
Noise Figure ($I_C = 250\text{ }\mu\text{Adc}$, $V_{CE} = 5.0\text{ Vdc}$, $R_S = 1.0\text{ k}\Omega$, $f = 1.0\text{ kHz}$)	NF	—	8.0	dB

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle = 2.0%.

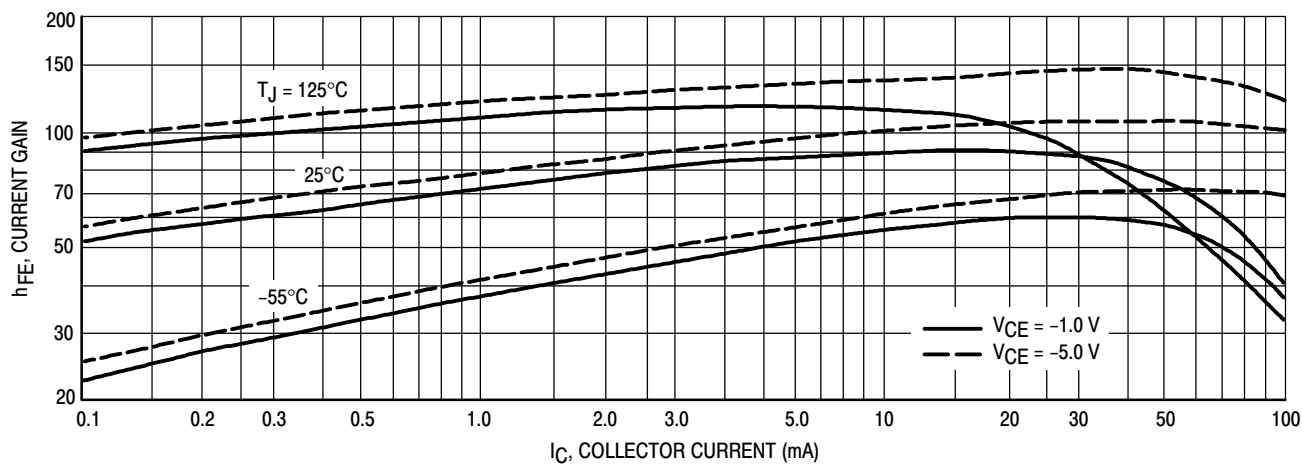


Figure 1. DC Current Gain

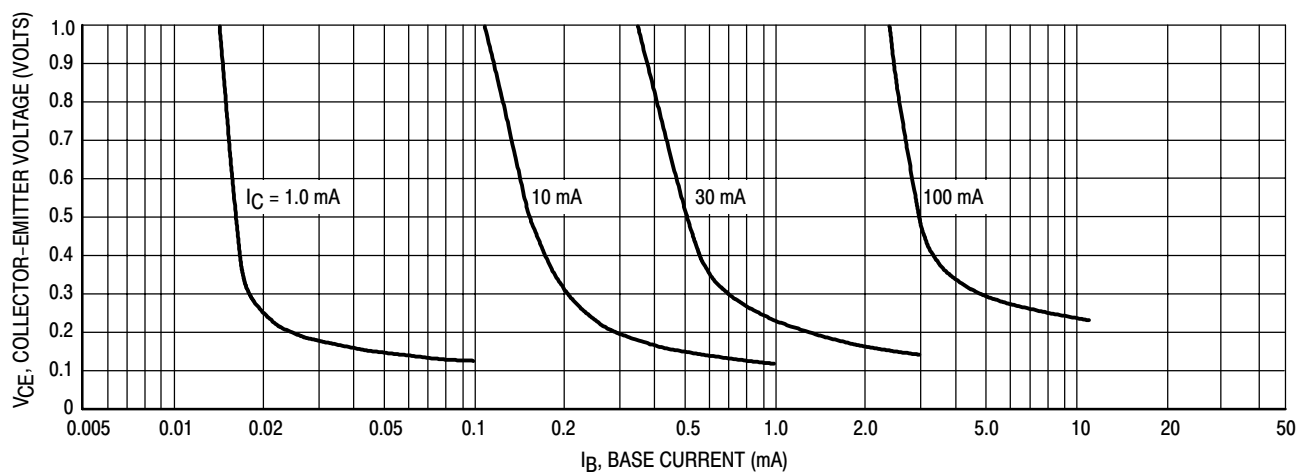


Figure 2. Collector Saturation Region

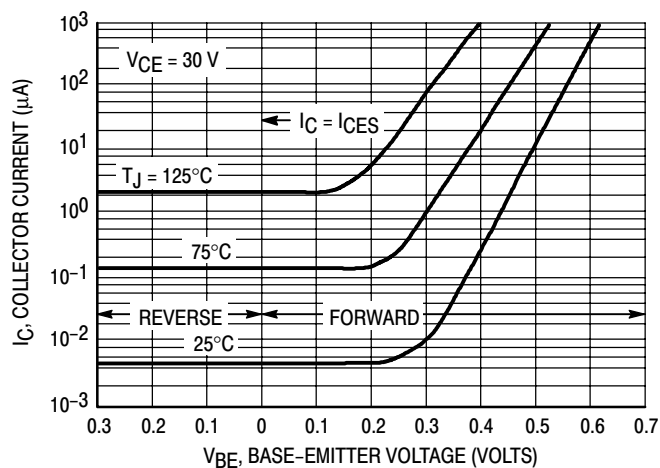


Figure 3. Collector Cut-Off Region

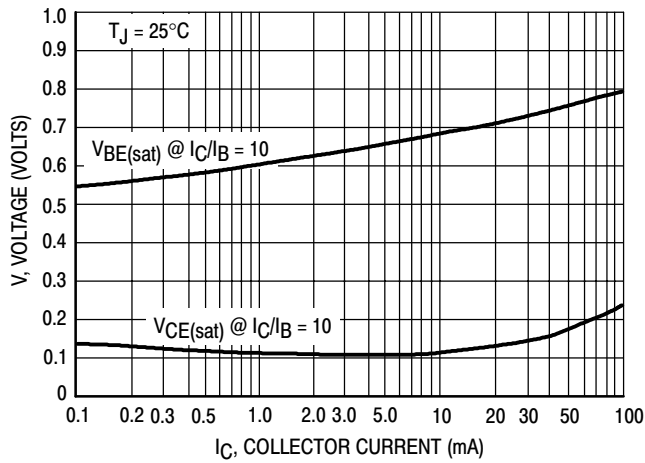


Figure 4. "On" Voltages

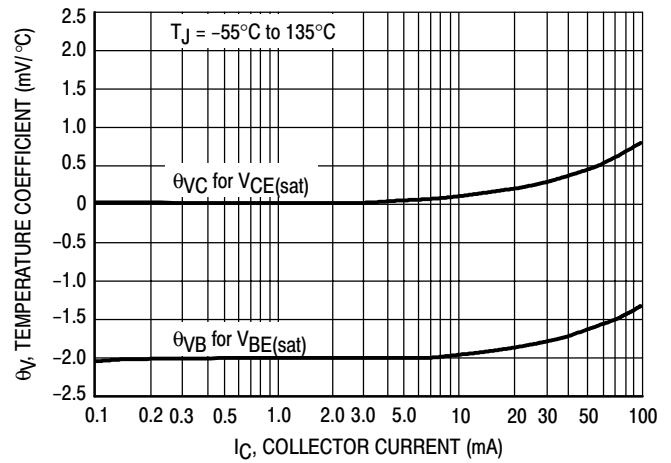


Figure 5. Temperature Coefficients

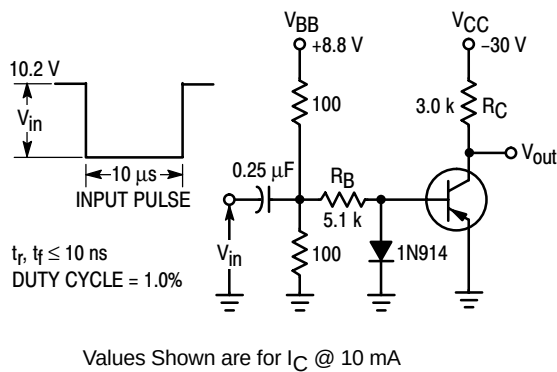


Figure 6. Switching Time Test Circuit

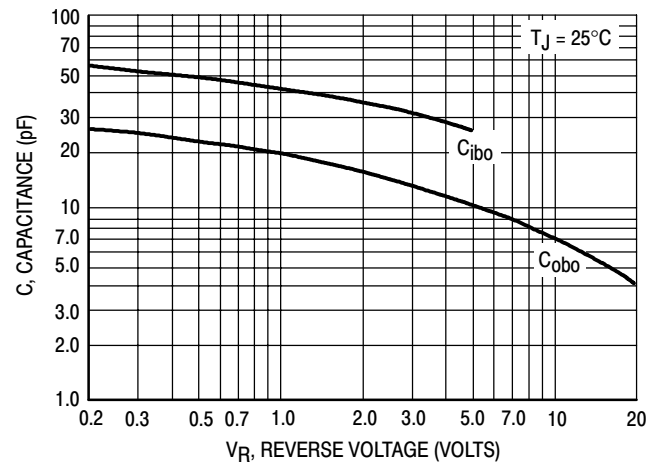


Figure 7. Capacitances

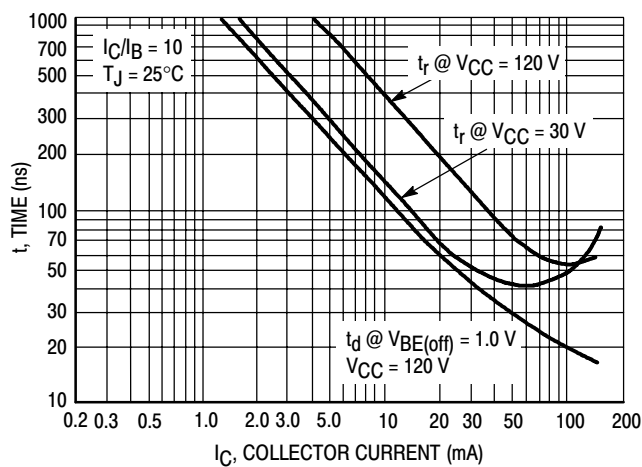


Figure 8. Turn-On Time

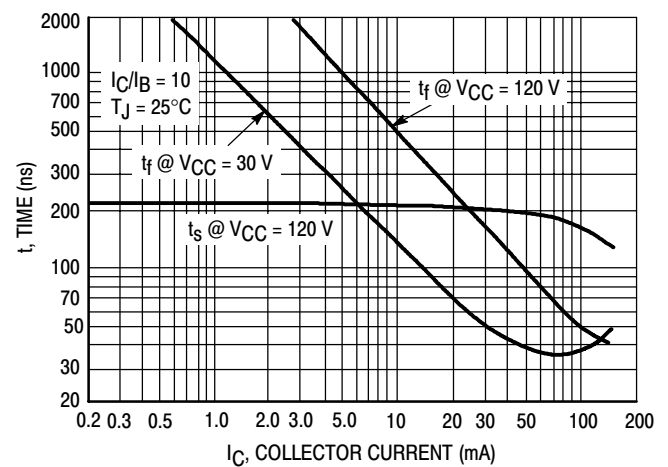


Figure 9. Turn-Off Time